

CLAIMS

What is claimed is:

[Claim 1] A vehicular headlamp comprising at least one semiconductor light-emitting element and an optical system comprising at least one of a reflector and a lens, a focal point of said optical system being on or near a light-emitting surface of said light-emitting element, said light-emitting surface of said light-emitting element having a horizontally elongated shape in a direction orthogonal to an optical axis of said light-emitting element when viewed in the direction of the optical axis of said light-emitting element, and said optical system forming a light distribution pattern by enlarging a light pattern of said light-emitting surface in a horizontal direction.

[Claim 2] The vehicular headlamp according to claim 1, wherein said light-emitting surface has a substantially rectangular shape when viewed in said direction of said optical axis.

[Claim 3] The vehicular headlamp according to claim 1, wherein said light-emitting element comprises a semiconductor chip, a reflector disposed behind and around said semiconductor chip, and a fluorescent body filled around said semiconductor chip, said fluorescent body having a shape that is rotationally asymmetric with respect to said optical axis of said light-emitting element.

[Claim 4] The vehicular headlamp according to claim 2, wherein a side edge portion of a pattern shape of said image of said light-emitting element in a longitudinal direction thereof has a shape geometrically similar to a cut line of a low-beam of a headlamp.

[Claim 5] The vehicular headlamp according to claim 1, wherein said light-emitting element comprises a plurality of semiconductor chips arranged in a matrix, whereby a rotationally asymmetric light intensity distribution can be obtained around the optical axis of the light-emitting element by selectively causing a plurality or all of said semiconductor chips to radiate light.

[Claim 6] The vehicular headlamp according to claim 5, wherein said semiconductor chips are arranged in a single line, and further comprising a semi-cylindrical transparent member covering said semiconductor chips.

[Claim 7] The vehicular headlamp according to claim 5, wherein said semiconductor chips are arranged in a single line, and further comprising a semi-cylindrical fluorescent member covering said semiconductor chips.

[Claim 8] The vehicular headlamp according to claim 5, wherein said semiconductor chips are arranged in a rectangular matrix, and said optical system comprises a hemispherical transparent member covering said semiconductor chips.

[Claim 9] The vehicular headlamp according to claim 5, wherein said semiconductor chips are arranged in a rectangular matrix, and said optical system comprises a hemispherical fluorescent member covering said semiconductor chips.

[Claim 10] The vehicular headlamp according to claim 5, wherein different ones of said semiconductor chips have respectively different shapes so as to produce respective light distribution patterns having differing amounts of diffusion in a horizontal direction, whereby said optical system forms a combined projected light pattern by combining said respective light distribution patterns having differing amounts of diffusion.

[Claim 11] The vehicular headlamp according to claim 10, wherein selected ones of said semiconductor chips are shaped and arranged to produce a projected light pattern having a cut line for a headlamp low-beam.

[Claim 12] A vehicular headlamp comprising a semiconductor light-emitting element and an optical system comprising at least one of a reflector and a lens, a focal point of said optical system being on or near a light-emitting surface of said light-emitting element, said light-emitting surface of said light-emitting element having a rotationally asymmetric shape in a direction orthogonal to an optical axis of said light-emitting element when viewed in the direction of the optical axis of said light-emitting element, and said optical system forming a light distribution pattern by enlarging an image of said light source image.

[Claim 13] The vehicular headlamp according to claim 12, further comprising a transparent member covering a light-emitting portion of said light-emitting element.

[Claim 14] The vehicular headlamp according to claim 12, further comprising a fluorescent member covering a light-emitting portion of said light-emitting element.